IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Kinoshita et al.

Serial No.: 09/395,805   Art Unit: 1774

Filed   : September 14, 1999

Examiner   : B. Shewareged

For   : HEAT-SENSITIVE STENCIL SHEET

Declaration

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir:

I, Sayako NAKAO, do hereby declare that:

I graduated in March 1999 from the master course of
the Graduate School of Sciences of Kyushu University majoring
in Chemistry, and since then have been employed by RISO KAGAKU
CORPORATION and have been engaged for about three years in
development of stencil sheets;

I have read and understood the specification of said
application, and am familiar with the prosecution history of
said application, and I have read and understood the official
actions which were issued against this application and was
mailed on September 27, 2000, March 27, 2001 and August 13,
2001;

I made the following experiments in order to show
that United States Patent No. 6,025,286, which is cited by
Examiner in the above office action, fails to suggest the
present invention.

Experiments

1.   Sample Nos. 1-9 of heat-sensitive stencil sheets were obtained in a similar manner as described in the present specification, which had the properties (i.e., basis weight of fibers, average fiber diameter, and film thickness) shown in the attached Table. Then, the samples were evaluated in a similar manner as described in the present specification on the lengthwise tensile strength at 2% elongation, the KES bending rigidity value B and the residual torque (T-H) as well as the jamming upon carrying and the creasing on drum. The results are shown in the attached Table together with the results of Examples 1-5 and Comparative Example 1 of the present specification. Also, the scatter diagrams of residual torque (T-H) versus each of the other properties shown in the attached Table are attached hereto.

2.   The samples 4 and 7 were bent in a similar manner, and the bent portions of the respective samples were photographed by a scanning electron microscope (SEM) to show the difference in tangle of fibers between the two samples, and the results are attached hereto. Specifically, the photograph of the sample 4 shows that some fibers of the bent portion (marked by I) were greatly untangled, while the photograph of the sample 7 shows that little fibers of the bent portion (marked by circled 1) were untangled.

From the attached Table and diagrams, it can be understood that the residual torque (T-H) is not dependent upon any of the basis weight, the average fiber diameter, the film thickness, the tensile strength and the bending rigidity, while the occurrence of jamming and creasing is dependent upon the residual torque (T-H).

From the attached photographs, it can be understood that the fibers of the sample 4 which does not meet the present value of the bending torque (T-H) are readily untangled to release the residual torque, but the fibers of the sample 7 which meets the present value of the bending torque (T-H) are not readily untangled to keep the residual torque and readily recover the original shape.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: ___March___ _12_ _, 2002_   *Sayako Nakao*
                              _____
   Sayako NAKAO
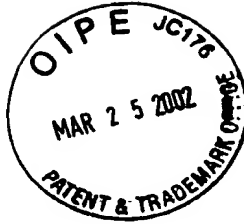
TABLE

| Sample No.	Basis weight of fibers (g/m²)	Average fiber diameter (μm)	Film thickness (μm)	Lengthwise tensile strength (at 2% elongation) (kgf/cm)	KES bending rigidity value B (gf·cm²/cm)	Residual torque (T-H) (g·cm/cm)	Jamming upon carrying	Creasing on drum
1	11.4	4.2	0.8	0.32 ✓	0.047 ✓	0.0699 ×	O	×
2	11.0	3.8	1.5	0.50 ✓	0.041 ✓	0.0674 ×	O	×
3	12.0	5.0	1.3	0.41 ✓	0.065 ✓	0.1223 ×	O	×
4	13.0	4.2	1.4	0.53 ✓	0.074 ✓	0.1359 ×	O	×
5	13.0	3.3	1.6	0.61 ✓	0.073 ✓	0.0948 ×	O	×
6	11.0	3.3	1.5	0.50 ✓	0.059 ✓	0.0880 ×	O	×
7	13.0	3.8	1.7	0.56 ✓	0.063 ✓	0.2766 ✓	O	O
8	11.0	3.8	1.7	0.51 ✓	0.050 ✓	0.1682 ✓	O	O
9	11.0	3.8	1.7	0.52 ✓	0.035 ✓	0.1723 ✓	O	O
Example 1	12.8	8.7	1.5	0.39	0.068	0.2576	O	O
Example 2	12.0	7.0	1.5	0.38	0.059	0.2512	O	O
Example 3	10.0	7.0	1.5	0.31	0.041	0.1875	O	O
Example 4	10.5		1.7	0.67	0.028	0.2197	O	O
Example 5	11.0	3.8	1.5	0.41	0.056	0.1513	O	△
Comparative Example 1	9.5	3.8	1.5	0.38	0.028	0.1080	O	×

Criteria of evaluation

O: Neither jamming at carrying nor creasing on drum occurred.
△: Jamming at carrying or creasing on drum occurred, but the sheet was practically acceptable.
×: Jamming at carrying or creasing on drum occurred, and the sheet was not usable.

satisfies residual torque, KES value B, and tensile strength

GRAPH 1: Basis weight of fibers vs. Residual torque(T−H)

Basis weight of fibers [g/m²]
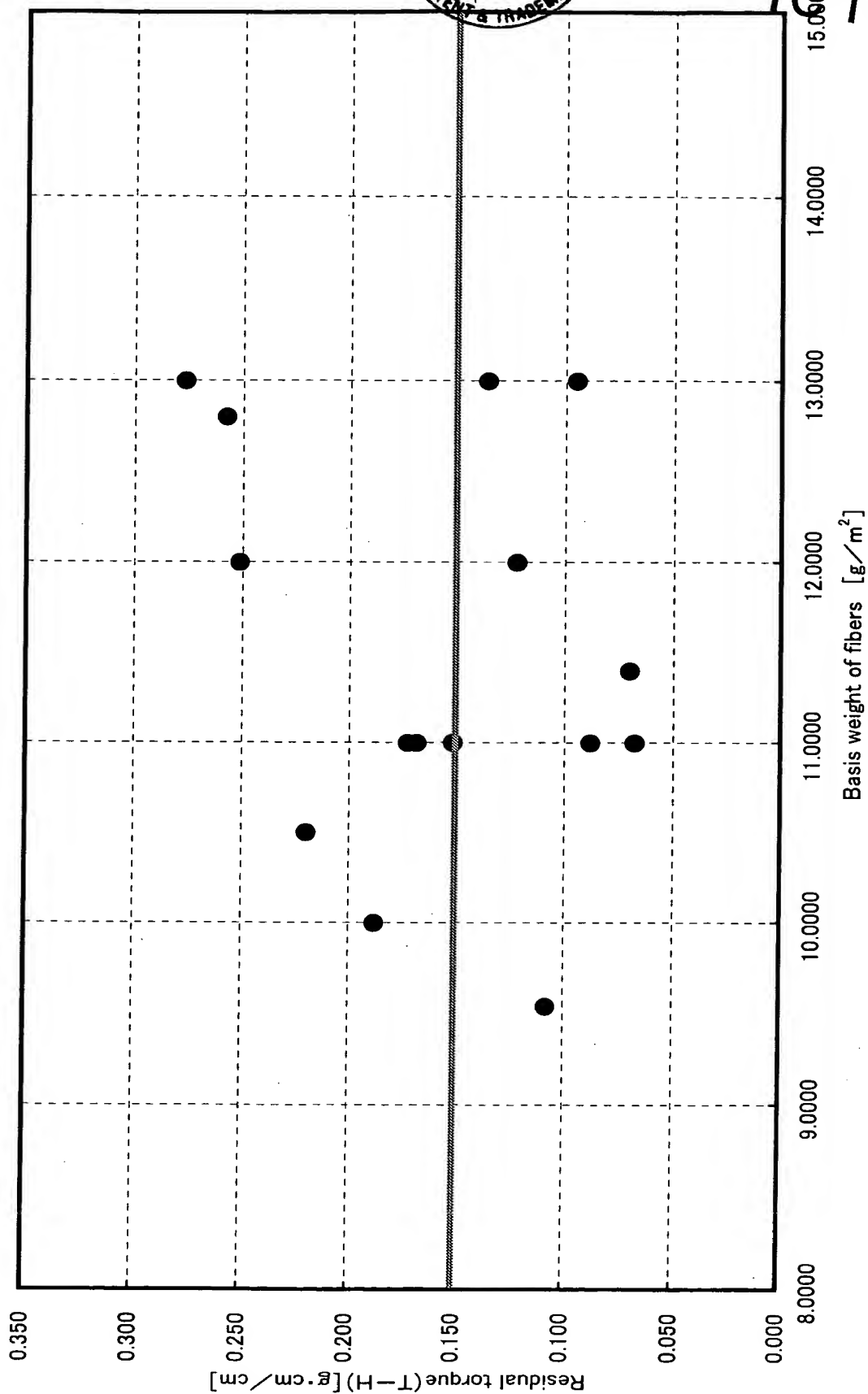
Residual torque(T−H) [g.cm/cm]
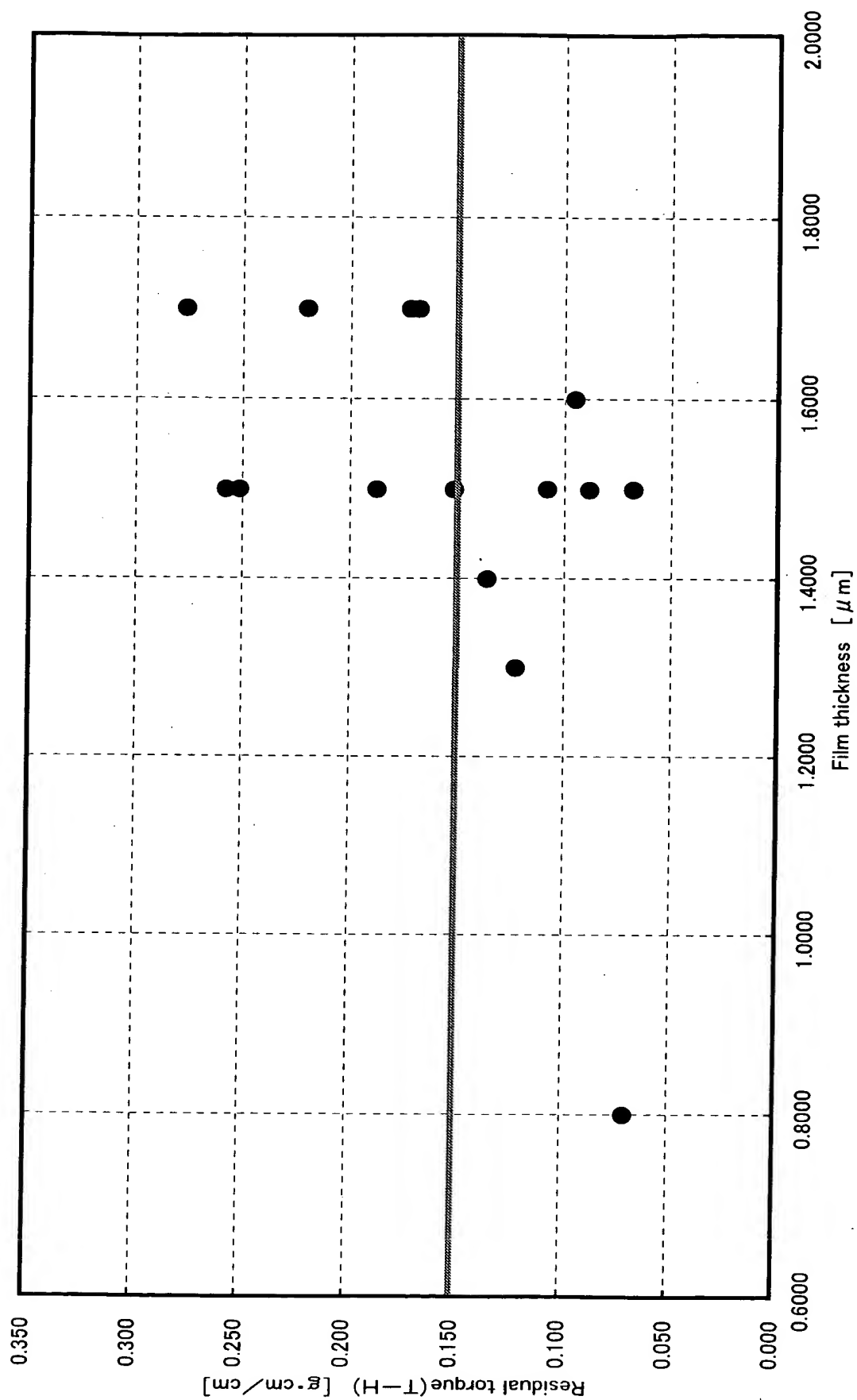
GRAPH 2: Average fiber diameter vs. Residual torque(T−H)
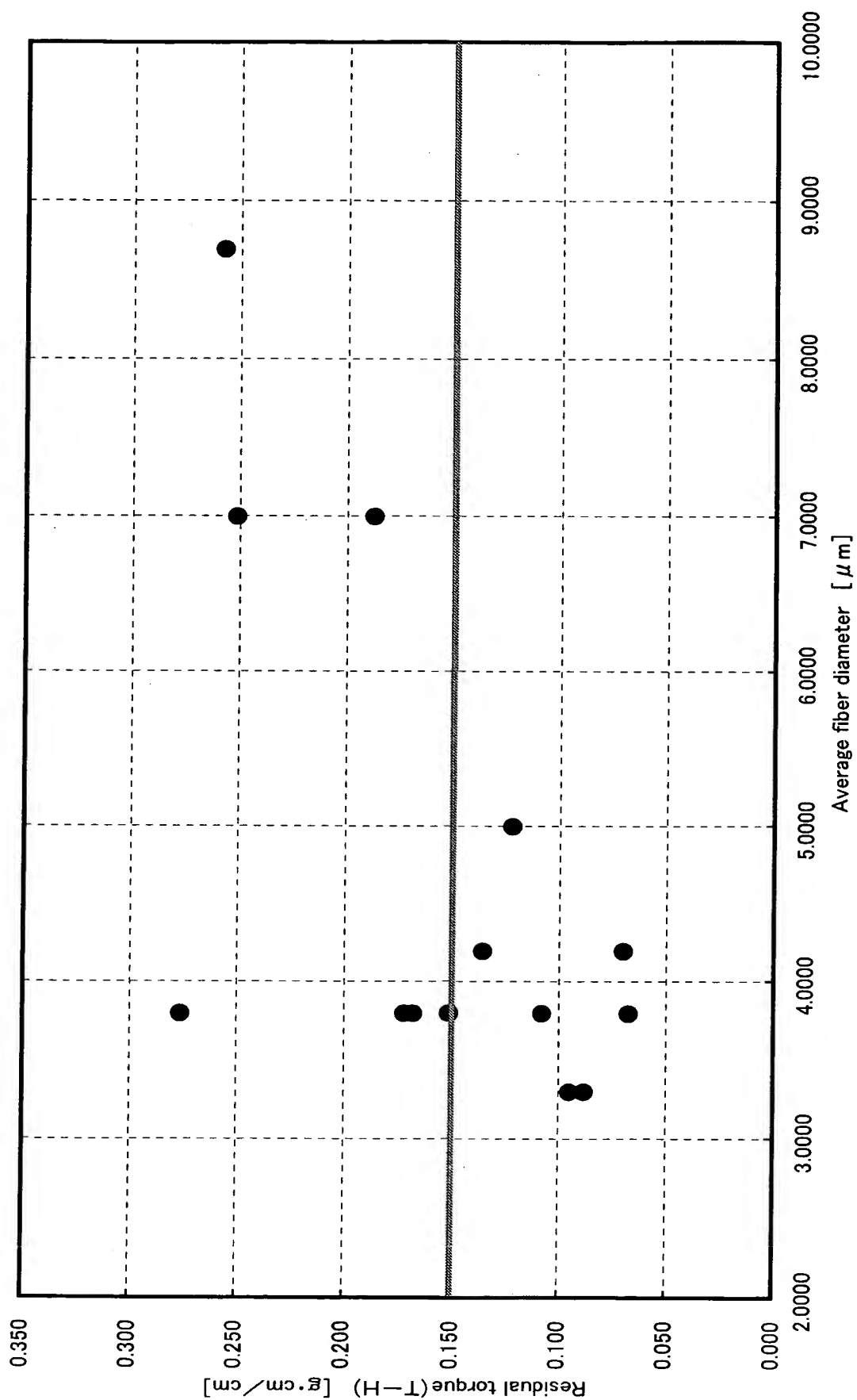
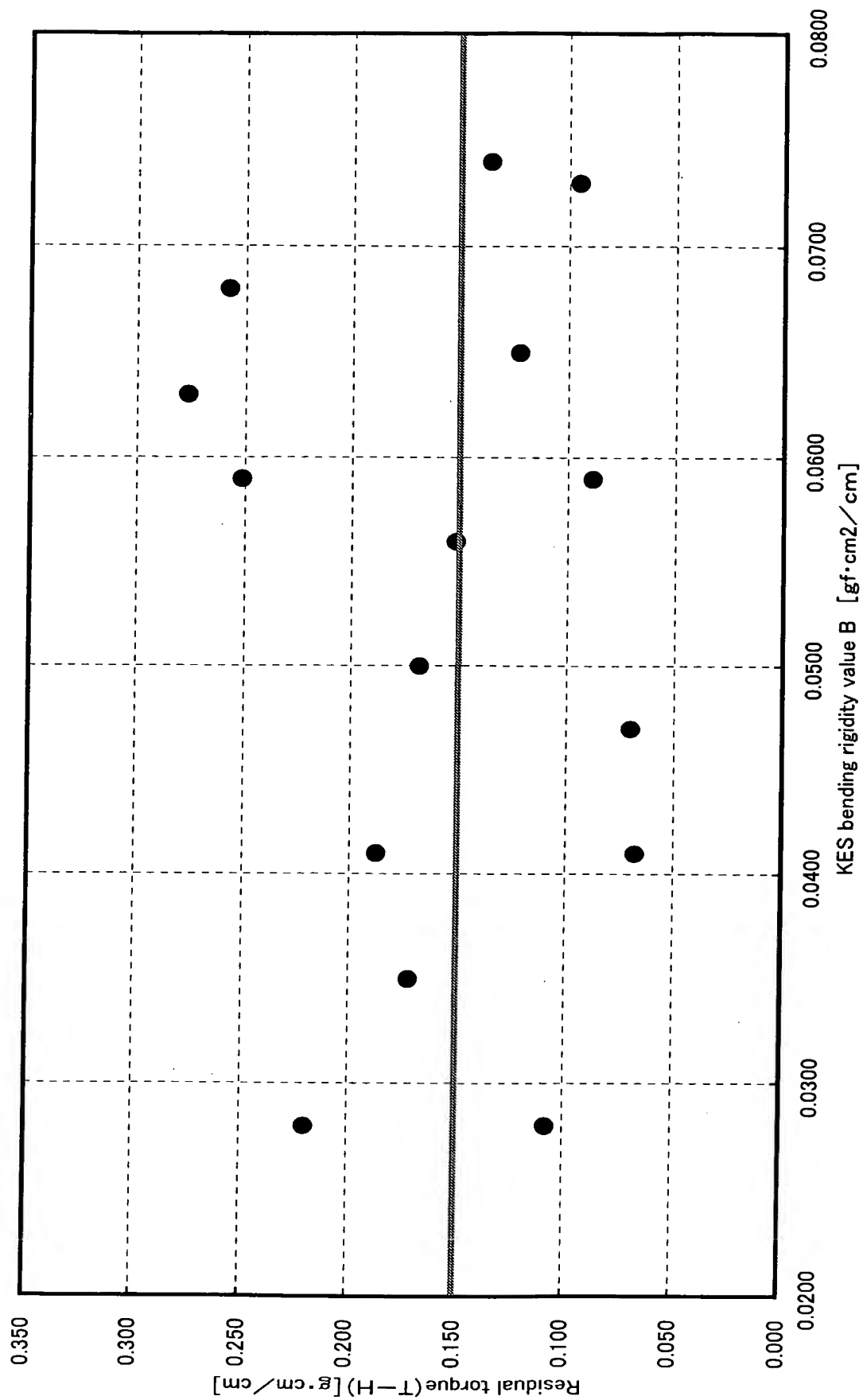GRAPH 3 : Film thickness vs. Residual torque(T−H)

Residual torque(T−H) [g·cm/cm]

Film thickness [μm]

GRAPH 4: Lengthwise tensile strength vs. Residual torque(T−H)

Residual torque(T−H) [g·cm/cm]

Lengthwise tensile strength(at 2% elongation) [kgf/cm]
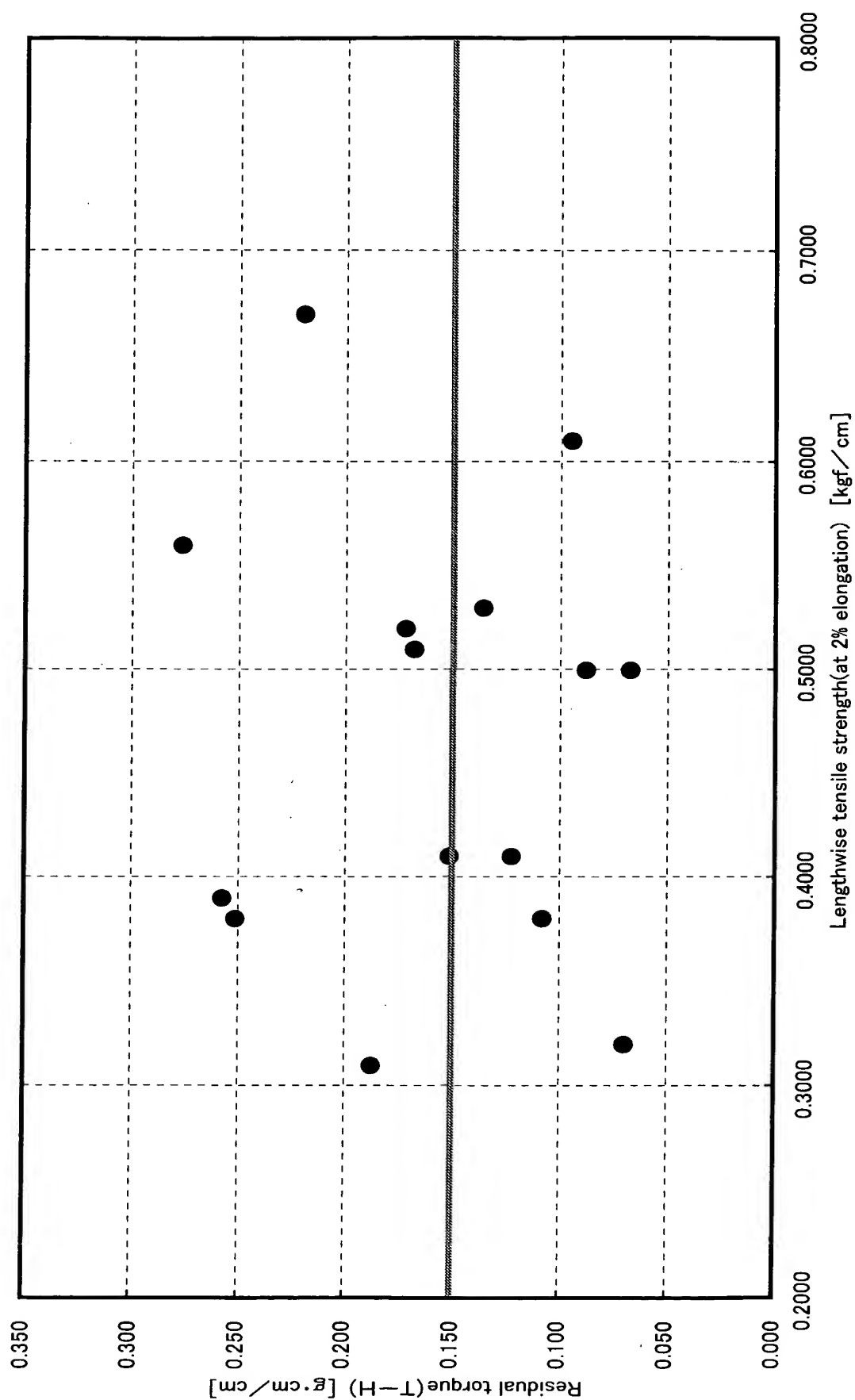
GRAPH 5: KES bending rigidity value B   vs.   Residual torque(T－H)

Residual torque(T－H) [g·cm/cm]

KES bending rigidity value B   [gf·cm2/cm]

Photograph of the sample 7

RISO 1.0KV ——— 100μm ×100 10mm

Photograph of the sample 4

RISO 1.0KV 1 μm 00 11mm